

REMARKS

A Request for a Two (2) Month Extension of Time pursuant to 37 CFR §1.136(a) and (b) is attached hereto.

The above-captioned patent application has been carefully reviewed in light of the final Office Action to which this Amendment is responsive. Claims 1, 6, 9 and 12 have been further amended in an effort to further clarify and particularly point out that which is regarded as the present invention. Claims 13-17 have been added. To that end, it is believed no new matter has been added. Claims 2-5, 7, 8 and 10 have been canceled.

Claims 1-12 are pending. Each of the pending claims have been rejected in light of certain prior art, while Claims 9-12 have been rejected under certain paragraphs of Section 112. Applicant respectfully requests reconsideration based on the amended claims, as well as the following discussion.

Applicant gratefully acknowledges the telephonic interview granted by Examiner Brian R. Gordon with Applicant's representative, Peter J. Bilinski on March 12, 2007. The subject matter of the telephone interview is included in this correspondence.

Turning to the prior art rejections, Claims 1 and 2 have been rejected as being anticipated by Hughes (U.S. Patent No. 3,449,081) under 35 USC §102(b). Applicant respectfully herein traverses this rejection. In order to successfully advance an anticipation rejection under the Statute, each and every claimed limitation must be found or its substantial equivalent in the single cited prior art reference.

Applicant has now added the language of dependent Claims 2-5 to the body of Claim 1. Claims 2-5 have been canceled. As a result, it is believed this anticipation rejection is now rendered moot. Withdrawal of same is therefore respectfully requested.

In passing, the Examiner has opined a belief during the above-noted interview that the structure of Hughes alone could arguably support the inclusion of a defined read window, since the claimed read window is integral to the tip itself and therefore an anticipation rejection could be maintained. Applicant does not agree with this characterization. A "read window" for purposes of the invention requires an axial portion or section that will permit direct optical examination of a contained fluid in order to determine properties of the fluid. One such example of a window of this type is defined by Treptow, already cited by the Examiner. As gleaned from the present application and from Treptow, optical measurement, such as through use of a spectrophotometer requires that the fluid be measured through the tip, using for example, a light emitter and detector. To that end, the read window "portion" of the tip should include a continuous axial section having a finite length as well as planar interior and exterior surfaces, as evidenced by Treptow and also by the tip shown in Figs. 11 and 12, by Applicant.

The Hughes cap, on the other hand, is almost entirely defined along its entire length by a series of stepped, nonplanar surfaces on each of the interior and exterior surfaces. The purpose of these steps, it would seem is to provide securement of the cap to the bottle. To that end, it should be noted that the cap is secured onto the end of the bottle, thereby covering the bottle, which contains the fluid. As a result and in order to "read" the fluid contained within the bottle, for example, using a spectrophotometer, one must not only look through the wall of the tip, but also the wall of the bottle, as well. The present tip, when attached to a metering apparatus, is not so encumbered, as is shown for example in Figs. 11 and 12. The tip is attached to a proboscis, but fluid is directly received within the tip (not an intermediate contained structure). The axial portion of Applicant's tip, when attached to a metering apparatus for aspiration and dispense, permits an optical instrument to directly access the read window through the tip while further including at least one stepped area to latch a fluid meniscus.

Claims 3-12 have been rejected under 35 USC §103(a) based on the combination of Hughes and Treptow et al. (U.S. Patent No. 5,844,686). Applicant respectfully traverses this rejection. In order to maintain a successful "prima facie"

obviousness rejection under the Statute, each and every essential claim limitation must be found in or suggested by the prior art. There must be suggestion found in the prior art as a whole to combine references together to create the claimed invention. To that end, each cited reference must be read in its entirety and not in a piecemeal fashion using impermissible hindsight (i.e., advance knowledge) of the invention.

With regard to Claim 1, as amended, it is not believed that the Examiner can combine Treptow and Hughes, without hindsight of the present invention. Hughes relates to a screw-on cap that includes a plurality of screw-on features, thereby defining stepped areas, structurally. Treptow includes a pipette tip that includes a set of windows that permit optical examination of a contained fluid. As is noted by Treptow, the analysis would be performed through the pipette tip and through the windows. Applicant requires a similar need for its read window; that is, an optical examination of sample through the tip. Hughes, on the other hand, in its attachment to its metering apparatus (the bottle) requires that the bottle is retained as intermediate structure within the confines of the cap. As such, two immediate issues appear to be present. First, it would appear that the presence of the intermediate structure, even if the bottle were transparent, would literally defeat an optical measurement, such as one using a spectrophotometer or similar instrument. Secondly, literally the entire axial length of the cap is defined by a stepped structure. As such, there is no true axial portion that is separate and distinct from the stepped areas having planar interior and exterior surfaces disposed along the axial length thereof to define a read window that is sufficient to permit an optical reading of retained fluid through the tip.

Treptow has been relied upon by the Examiner to teach the structure of a read window. Applicant does not disagree with that teaching, per se'. To that end, Hughes does not teach a read window. Though the cap of Hughes is optically transparent, this transparency does not permit the tip to be accessed optically therethrough by way of a suitable axial portion, such as by means of a spectrophotometer, for assessing an aspirated fluid sample.

To include a read window, such as described by Hughes, would appear to destroy the functionality of the screw-on tip. Moreover, and even if a read window could be so defined in the cap, there would still be a requirement of the intermediate bottle structure that would not permit a direct through optical measurement of contained sample.

It is known to aspirate fluid into a metering tip for purposes of dispensing same as part of a typical metering cycle wherein fluid is supported within the tip by a combination of forces, as noted at page 2 of Applicant's specification, see paragraph [0004]. As noted, Applicant has provided a tip that includes a plurality of interior stepped areas that permit a lower meniscus of fluid to be latched so as to slow the movement of the fluid and minimize oscillations of the fluid as the fluid is dispensed. In addition, the tip includes a read window to permit spectrophotometric reads to be taken directly through the tip through the defined read window. It is further desirable to take optical reading of a dead volume of fluid after the remaining fluid has already been aspirated onto sample elements and while the tip is still attached to a metering apparatus. As noted with reference to Fig. 12 and paragraphs [0028], [0029], and [0030] of the specification, a dead fluid volume is drawn up into the nozzle of the tip prior to sealing of the tip. In drawing the air bubble upwards into the nozzle, the upper meniscus of the fluid becomes a concern with regard to a later spectrophotometric read in that surface tension could cause this meniscus to take on a spherical or other shape that would affect the accuracy of the optical reading. Therefore, a stepped area is provided just above the read window; by above, it is meant between the upper tip opening and the read window. This stepped area is used to latch and therefore effectively "flatten" the upper meniscus of fluid of dead volume and, as a result, improve the accuracy of the optical tests through the tip.

As noted above, Applicant has now amended Claim 1 to include the subject matter of Claims 2-5. It is respectfully submitted that Hughes fails to either an axial portion that defines a read window according to amended Claim 1 or an interior stepped area that is provided above the defined read window. The inclusion of Treptow fails to include these features in that there is no motivation to combine the references together

given that the functionality of Hughes would be severely impacted. One cannot ignore the entirety of the reading of Hughes and the purposes of the screw-on cap. Such change is believed to be evidence of a "teaching away" of this prior art combination. Moreover and as noted, if such a combination were somehow possible, the intermediate bottle of Hughes would still prevent a through the tip analysis through the defined read window. As a result, it is believed that a "prima facie" obviousness rejection cannot be made in that neither reference includes specifically recited features. Therefore, reconsideration is respectfully requested.

Applicant has also amended independent Claim 6 to clarify the defined read window and to positively recite that the metering tip includes a stepped area "above" the read window for improving the accuracy of an optical reading of a fluid volume in the tip taken through the read window to permit optical through the tip readings in addition to a plurality of adjacent stepped areas between the lower tip opening of the tip and the read window. Support for the amended claim is found in canceled Claims 7 and 8, as well as paragraphs [0028] – [0030] and Fig. 12. Therefore, no new matter has been added. As noted above, it is respectfully submitted that Hughes fails to include a read window that permits through the tip optical readings of a retained fluid when the tip is attached to a metering apparatus. In the instance of Hughes, the cap entirely includes a series of stepped areas over its length and also requires the presence of the attached intermediate structure of the bottle, the latter actually retaining the fluid quantity. Though Treptow includes a set of read windows, it is not understood how Hughes would be reconfigured to permit the inclusion of the windows without effectively destroying the functionality and structure of Hughes' cap. In addition and even if such modification were possible, in arguendo, it is not understood how a through the window optical analysis of fluid would be possible. To that end, it is believed that Claim 6, as amended, is distinguishable over the cited art of record. Reconsideration is therefore respectfully requested.

Independent Claim 9 has also been amended to now include the subject matter of Claim 10, now canceled. More particularly, this method claim has been amended to positively recite the step of attaching a tip to a metering apparatus and aspirating fluid

into the tip and moving a meniscus of fluid past a sharp diametrical edge in order to latch the meniscus passing at least one stepped area within the tip. The tip includes an axial portion defining a read window wherein at least one stepped area is disposed above the read window that flattens the upper meniscus of fluid retained within the tip in order to permit an accurate optical reading through the tip through the read window while the tip remains attached to the metering apparatus. As previously noted, neither of the cited patents to Treptow or Hughes includes or suggests these features, whether singly or in combination. Hughes fails to disclose or teach a method in which a read window is used. In addition, it is respectfully submitted that this reference fails to define the purpose of the stepped areas. As such, there is no teaching absent Applicant's disclosure that a plurality of adjacent stepped areas are used to latch a meniscus of a dispensed fluid to reduce oscillations. Moreover, the cap of Hughes must be attached to the bottle to draw in fluid and therefore the bottle is required as an intermediate structure. It is not understood, as previously noted, how an intermediate structure, would permit optical testing of a sample, let alone a cap that must include the screw-on features to permit securement to the bottle. As such, the cap itself cannot provide a read window as intended by Applicant. Therefore, it is believed there can be no prima facie obviousness rejection under the Statute. Reconsideration is respectfully requested. Claims 11 and 12 are believed to be allowable for the same reasons.

Applicant has now added Claims 13-17. Independent Claim 13 recites a method for reducing fluid oscillation for a fluid retained within a metering tip. According to this claimed method, a metering tip is attached to a metering apparatus and an initial volume of fluid is aspirated into the metering tip. The tip comprises a lower tip opening, an upper tip opening and an interior, wherein the interior further comprises at least one stepped area. The at least one stepped area includes a sharp diametrical edge at the junction of the surface of an interior region and the surface of the stepped area, the surfaces being substantially orthogonal. In addition and according to Claim 13, the tip further includes an axial portion having planar interior and exterior surfaces defining a read window. The method includes the additional step of moving a meniscus of fluid past the sharp diametrical edge thereby for latching the fluid, a meniscus of the fluid

passing said at least one stepped area and thereby reducing oscillation of the fluid in the metering tip. Support is found for this claim at paragraphs [0023], [0024], [0026], [0027], [0028], [0029], and [0030] of the present specification, as well as Figs. 9-12.

New Claim 14 is dependent on Claim 13 and includes the additional step of dispensing retained fluid onto at least one reaction device, wherein said at least one stepped area is disposed proximate to said lower tip opening to latch a lower meniscus of dispensed fluid to reduce oscillations thereof during the dispense step. Support for this claim is provided at paragraphs [0023], [0024]. New Claim 15 is dependent on Claim 14 and specifies the at least one stepped area includes a plurality of adjacent stepped areas disposed in relation to said lower tip opening. Support is found at paragraph [0024] and Fig. 4.

New Claim 16 includes the additional steps of dispensing portions of the initial volume of aspirated fluid onto at least one reaction device and aspirating the remaining volume of fluid into said axial portion of said tip. According to this claim, the tip includes at least one stepped area immediately above the read window to latch an upper meniscus of said retained fluid to flatten said meniscus to permit an accurate optical reading of said retained volume through the tip. Finally, new Claim 17 recites that the remaining fluid volume is directly accessible through the tip through the defined read window by an optical instrument without intermediate structure while attached to said metering apparatus. Support for the foregoing is found at paragraphs [0026], [0027], [0029], and [0030], as well as Fig. 12.

Claims 9-12 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner has expressed concerns that Applicant has failed to provide proof of support for the amendments to Claims 9 and 10 and to the addition of new Claims 11 and 12. Applicant apologizes for not being sufficiently precise with regard to this denotation. With regard to previously amended Claim 9, the added subject matter is provided in paragraph [0024], in which the latching of the fluid meniscus 82 is described as the meniscus moves past each

internal diametrical edge, the interior edges being sharp and further illustrated in Figs. 4-10. By providing a series of stepped areas 68, oscillation is reduced. In addition, Fig. 12 evidences stepped areas both above and below a read window 96 – as discussed in paragraph [0030] with regard to a stepped area 92 that is disposed above the optical read window 96.

With regard to Claim 11, an upper tip opening and a lower tip opening for a metering tip are described with regard to paragraphs [0003] [0004] and figures 1 and 2. Clearly, each of the metering tips permit aspiration through a dispense end of a metering tip as acknowledged prior art. Reference is also made to paragraph [0028]. The sealing step of Claim 12 is described in paragraph [0027]. Again, Applicant apologizes for any inconvenience with regard to this previous notation.

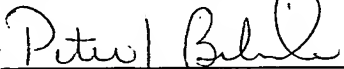
Claim 10 has also been rejected under 35 USC §112, second paragraph, for failing to particularly point out and distinctly claim the present invention. To that end, Applicant has incorporated the Examiner's suggestion and amended Claim 9 to note the read window as being already being manufactured (e.g., defined) into the tip.

In summary, it is believed the above-captioned application is now in an allowable condition and an expedited Notice of Allowability is earnestly solicited.

The Director is herein directed to charge Deposit Account 50-0289 for the fee for the requested two month extension of time. The Director is hereby also authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-0289 under Order No. 961_013 from which the undersigned is authorized to draw.

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Respectfully submitted,

By 

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